

Facility Name: **GIW Industries, Inc.**

City: Grovetown

County: Columbia

AIRS #: 04-13-073-00004

Application #: 584893

Date SIP Application Received: March 2, 2022

Date Title V Application Received: March 2, 2022

Permit No: 3561-073-0004-V-04-1

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Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and draft operating permit amendment. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Sections 391-3-1-.03(1) and 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public comment period and EPA review process will be described in an addendum to this narrative.

I. Facility Description**A. Existing Permits**

Table 1 below lists the current Title V permit, and all administrative amendments, minor and significant modifications to that permit, and 502(b)(10) attachments.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Description
Permit No. 3561-073-0004-V-04-0	February 11, 2020	Title V Renewal

B. Regulatory Status**1. PSD/NSR/RACT**

Though the facility is classified as one of the 28 named source categories in the PSD regulations (secondary metal production) and has the potential to emit more than 100 tons per year of particulate matter, it is a minor source for PSD because the PM emissions are limited to less than 100 tons per year. This is achieved by limiting the baghouses and dust collectors which emit outside of the building to 0.02 gr/dscf and limiting the production of the facility. The PM emissions from Baghouse CD08 are limited by 40 CFR 63 Subpart EEEEE “National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries”.

The facility has a potential to pour 24 tons per hour of iron which equates to a potential capacity of 210,000 tons per year of iron poured. The facility requested a production limit of 30,000 tpy which makes them a PSD minor source. The potential PM emissions at a production rate of 30,000 tpy are 93 tpy before the proposed modification.

2. Title V Major Source Status by Pollutant

Table 2: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	Yes		✓	
PM ₁₀	Yes		✓	
PM _{2.5}	Yes		✓	
SO ₂	Yes			✓
VOC	Yes			✓
NO _x	Yes			✓
CO	Yes			✓
TRS	No			

SIP CONSTRUCTION PERMIT AND TITLE V SIGNIFICANT MODIFICATION APPLICATION REVIEW

H ₂ S	No			
Individual HAP	Yes	✓		
Total HAPs	Yes	✓		

II. Proposed Modification

A. Description of Modification

This application is for the construction and operation of a new cleaning department (ie. grinding), shot blast, machine shop, and paint booth.

B. Emissions Change

Table 3: Emissions Change Due to Modification

Pollutant	Is the Pollutant Emitted?	Net Actual Emissions Increase (Decrease) (tpy)	Net Potential Emissions Increase (Decrease) (tpy)
PM	yes		6.2
PM ₁₀	yes		5.22
PM _{2.5}	yes		5.22
SO ₂	no	--	--
VOC	yes		2.38
NO _x	no	--	--
CO	no	--	--
TRS	no	--	--
H ₂ S	no	--	--
Individual HAP	no	--	--
Total HAPs	no	--	--

A public advisory was not needed for this application because the potential emissions from this modification are below the cumulative modification thresholds in Georgia Rule 391-3-1-.03(6)(i)3.

C. PSD/NSR Applicability

The modification will not be subject the PSD requirements. The facility will continue to limit PM emissions to less than 100 tpy by limiting the production and by limiting the emissions from the baghouses/dust collectors.

Note that, with the 6.2-tpy of PM emission increases, the facility-wide PM PTE is expected to be 99.2 tpy. Although the facility claimed in a spreadsheet that the facility-wide PM PTE prior to the modification was 53.75 tpy, the spreadsheet did not demonstrate how the number was calculated. The Division has to use the pre-modification PM PTE stated in the last narrative, 93 tpy.

$$93 + 6.2 = 99.2 \text{ tpy PM} < 100 \text{ tpy PM}$$

With the 2.38-tpy additional VOC emissions, the facility-wide VOC PTE is expected to be 78.52 tpy. Therefore, the facility will remain a minor source under PSD regulations for PM and VOC. Since the

PM emission increase is very critical as shown above, the stack emissions from the baghouse (ID No. CD12) in the unit of pound PM per ton of input material must be validated in a performance test.

PM emissions from machining and grinding (ID Nos. FG08 and FG09) are fugitive and mixed with fugitive PM emissions from other sources inside the same warehouse. Due to the testing difficulty, and the facility assumed a conservative 50% building capture efficiency (instead of 100% being assumed to settle down in the building), the Division has determined that no testing is required for FG08 and FG09.

III. Facility Wide Requirements

A. Emission and Operating Caps:

There are no changes to facility wide emission and operating caps due to this application.

B. Applicable Rules and Regulations

Since the proposed modification is not expected to increase any hazardous air pollutant (HAP) emissions and toxic air pollutant (TAP) emissions, no toxic impact assessment is required.

C. Compliance Status

There are no facility-wide compliance issues noted with this application.

D. Permit Conditions

No changes to the facility-wide permit conditions were required for this amendment.

IV. Regulated Equipment Requirements

A. Brief Process Description

GIW Industries, Inc. produces iron pumps that are typically used for dredging waterways or handling slurries and solids. The facility uses old iron pump casings (of their manufacture) almost exclusively as the source of scrap. The foundry uses the following production processes to make the iron castings: raw materials handling, metal melting, core production, mold manufacturing, pouring, cooling, and finishing.

The manufacturing process at GIW Industries, Inc. begins with the unloading, storing, and conveying of raw materials. Scrap iron and various alloys are delivered to the facility via truck. The majority of scrap is stored outside. There are indoor storage bins for pig iron, splash over, and smaller scrap. The core and mold making materials such as sand, chemical binder, and refractory additives are delivered and then pneumatically conveyed to the appropriate storage silos.

When needed, scrap and alloys are conveyed from storage areas and deposited into the induction furnaces. Inside the induction furnaces, the metal is melted by electromagnetic field. The melt is then poured into ladles and transferred to the pouring area.

The cores are made from three resin systems, Furan, Phenolic Urethane No-Bake and Alkyde. Virgin sand is classified, weighed, and then blended with a binding agent and catalyst. The binder and sand mixture is then molded to shape and allowed to cure. The cores are then treated with a zircon refractory coating and conveyed to the molding area.

Molds are also made prior to casting. Reclaimed core sand is mixed with virgin mold sand and then blended with Furan resin and catalyst (Furfuryl Alcohol). Molds are produced on the pouring floor or conveyed to the pouring area.

In the pouring area, molten metal is poured from ladles into sand molds. The castings cool on the shop floor 7 to 30 days or more and are then transferred to the shakeout area. In the shakeout area, the castings are shaken free of the molds. The mold sand is then reclaimed for later use.

After shakeout, the castings are conveyed to the finishing area. During the finishing process, the castings are shot blasted, heat treated, ground, machined and painted.

B. Equipment List for the Process

Emission Units			Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description	Process Group		ID No.	Description
P003	Painting and Coating	FIN	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	CE13	Filter
FG08	Machining	FIN	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	--	--
FG09	Grinding	FIN	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	--	--
FG10	LCCI 2 Shot blast booth	FIN	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	CD12	Baghouse

C. Equipment & Rule Applicability

Emission and Operating Caps –

There are no additional emission and operating caps for this application. The facility has an existing total production limit of 30,000 tpy for PSD avoidance (for PM emissions). PM emissions from the baghouses and dust collectors are also limited to 0.020 gr/dscf in order to ensure that the PM emissions remain below 100 tpy.

According to the spreadsheet, the proposed Baghouse CD12 (pka baghouse LCCI2) is assumed to be emitting 0.25 lbs PM/hr with a 99% control efficiency. With the design capacity of the shot blast booth of 1.46 tons iron per hour, the PM emission factor is 0.171 lb/ton iron. This is the only stack PM emissions for the proposed modification. The after-control PM PTE for Baghouse CD12 is expected to be 1.10 tpy. Since the post-modification PM PTE is very close to 100 tpy, the Division decides to require a performance test to validate the 0.171-lb/ton PM emission factor for Baghouse CD12.

Applicable Rules and Regulations -

There are no additional rules and regulations for this application. The proposed new cleaning department (ie. grinding), shot blast, machine shop, and paint booth will be subject to Georgia Rule (e) - Particulate Emission from Manufacturing Processes and Georgia Rule (b) - Visible Emissions. The requirements for these rules are located in Permit No. 3561-073-0004-V-04-0.

D. Permit Conditions

- Condition 3.2.3 is a new condition which requires the associated baghouse to be used at all times to control PM emissions from LCCI 2 Shot blast booth.
- Condition 3.5.1 was modified to include the particulate filter for Paint Booth P003 for the operation requirements.

V. Testing Requirements (with Associated Record Keeping and Reporting)

Condition 4.2.1 was modified at the request of EPD to clarify that the Method 9 test is to be performed on the building vents above the melt decks.

As discussed previously, Condition 4.2.4 is a new condition which requires Baghouse CD12 for LCCI 2 Shot blast booth to be tested for validating the 0.171-lb/ton PM emission factor. The use of the emission factor allowed the total potential PM emissions to remain under 100 tpy for a synthetic minor status for PM emissions. The condition also requires the facility to resubmit a revised application if they are not able to verify the emission factor.

VI. Monitoring Requirements (with Associated Record Keeping and Reporting)

- Condition 5.2.1 was modified to include Baghouse CD12 for LCCI 2 Shot blast booth for the requirements of the check of visible emissions.
- Conditions 5.2.2a. and 5.2.2b. were modified to include Baghouse CD12 for LCCI 2 Shot blast booth and the particulate filter for Paint Booth P003 for the pressure drop monitoring requirements.

VII. Other Record Keeping and Reporting Requirements

Conditions 6.1.7c.ii. and 6.1.7c.iii. were modified to include Baghouse CD12 for LCCI 2 Shot blast booth and the particulate filter for Paint Booth P003 in the excursion report if their pressure drops exceed the manufacturer's recommended pressure drop.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//